Amendments to the Claims

and

Listing of Claims

This listing of claims will replace all prior versions, and listings, of claims in the application.

Claims 1 and 12 are amended.

Claims 20-24 are added.

Claims 7 and 8 are canceled without prejudice.

1. (currently amended) An ultraviolet acoustooptic device, comprising:

a radio-frequency signal input part;

a transducer unit for converting a radio-frequency signal into a mechanical vibration; and

an acoustooptic medium whose optical characteristic varies according to the mechanical vibration,

wherein light entering the acoustooptic medium is ultraviolet light having a wavelength of 380 nm or shorter, ~~and~~ the acoustooptic medium is formed of an oxide single crystal containing at least boron as a component of its unit cell, ~~a $LiNbO_3$ crystal, or a $LiNbO_3$ crystal doped with MgO~~ and the acoustooptic medium transmits ultraviolet light therethrough.

2. (original) The ultraviolet acoustooptic device according to claim 1, wherein the oxide single crystal contains at least alkali metal or alkaline-earth metal as a component of its unit cell.

3. (original) The ultraviolet acoustooptic device according to claim 1, wherein the oxide single crystal containing at least boron as a component of its unit cell is at least one of single crystals selected from a group including $Li_2B_4O_7$, $CsLiB_6O_{10}$, $LaCa_4O(BO_3)_3$, LiB_3O_5, α-BaB_2O_4, and β-BaB_2O_4.

4. (original) The ultraviolet acoustooptic device according to claim 3, wherein the oxide single crystal is a $Li_2B_4O_7$ or $CsLiB_6O_{10}$ single crystal.

5. (original) The ultraviolet acoustooptic device according to claim 1, wherein the oxide single crystal further contains a rare earth element as a component of its unit cell.

6. (original) The ultraviolet acoustooptic device according to claim 5, wherein the oxide single crystal containing a rare earth element as a component of its unit cell is at least one single crystal selected from a group including $(GdY)_1Ca_4O(BO_3)_3$ and $YCa_4O(BO_3)_3$.

7. (canceled)

8. (canceled)

9. (original) The ultraviolet acoustooptic device according to claim 1, wherein at least a part of the acoustooptic medium further is covered with a high thermal conductive sheet.

10. (original) The ultraviolet acoustooptic device according to claim 9, wherein the high thermal conductive sheet is a graphite sheet.

11. (original) The ultraviolet acoustooptic device according to claim 1, wherein the light entering the acoustooptic medium is ultraviolet light having a wavelength in a range of 160 nm to 380 nm.

12. (currently amended) An optical imaging apparatus, comprising:

a light source for emitting light with a wavelength of 380 nm or shorter;

an ultraviolet acoustooptic device for diffracting light emitted from the light source;

a driving circuit; and

an image plane on which light diffracted by the ultraviolet acoustooptic device forms an image,

wherein the ultraviolet acoustooptic device includes an acoustooptic medium formed of an oxide single crystal containing at least boron as a component of its unit cell, ~~a $LiNbO_3$ crystal,~~

~~or a $LiNbO_3$ crystal doped with MgO~~ and the acoustooptic medium transmits ultraviolet light therethrough.

13. (original) The optical imaging apparatus according to claim 12, wherein the oxide single crystal contains at least alkali metal or alkaline-earth metal as a component of its unit cell.

14. (original) The optical imaging apparatus according to claim 12, wherein the oxide single crystal containing at least boron as a component of its unit cell is at least one of single crystals selected from a group including $Li_2B_4O_7$, $(GdY)_1Ca_4O(BO_3)_3$, $CsLiB_6O_{10}$, $YCa_4O(BO_3)_3$, $LaCa_4O(BO_3)_3$, LiB_3O_5, α-BaB_2O_4, and β-BaB_2O_4.

15. (original) The optical imaging apparatus according to claim 12, further comprising a movable mirror for forming an image on the image plane with the light diffracted by the ultraviolet acoustooptic device, with the movable mirror being disposed between the ultraviolet acoustooptic device and the image plane.

16. (original) The optical imaging apparatus according to claim 12, wherein at least a part of the acoustooptic medium further is covered with a high thermal conductive sheet.

17. (original) The optical imaging apparatus according to claim 12, wherein the high thermal conductive sheet is a graphite sheet.

18. (original) The optical imaging apparatus according to claim 12, further comprising a beam stopper for shielding light transmitted through the ultraviolet acoustooptic device, with the beam stopper being disposed on a side where the light transmitted through the ultraviolet acoustooptic device travels.

19. (original) The optical imaging apparatus according to claim 12, wherein the image plane is a photoreceptor.

20. (new) The optical imaging apparatus according to claim 19, wherein phosphors are used as the photoreceptor for the image plane.

21. (new) The optical imaging apparatus according to claim 20, wherein phosphors corresponding to red, green, and blue are used as the photoreceptor for the image plane.

22. (new) The optical imaging apparatus according to claim 12, wherein the light source emits light with a wavelength in a range of 160 nm to 380 nm.

23. (new) A method for diffracting ultraviolet light by an ultraviolet acoustooptic device, the device comprising:

a radio-frequency signal input part;

a transducer unit for converting a radio-frequency signal into a mechanical vibration; and

an acoustooptic medium whose optical characteristic varies according to the mechanical vibration, the medium being formed of an oxide single crystal containing at least boron as a component of its unit cell,

wherein the acoustooptic medium transmits ultraviolet light therethrough,

the method comprising:

allowing ultraviolet light having a wavelength of 380 nm or shorter to enter the acoustooptic medium; and

applying a radio frequency to the radio-frequency signal input part so that the ultraviolet light is diffracted.

24. (new) The method according to claim 23, wherein the ultraviolet light has a wavelength in a range of 160 nm to 380 nm.